



**ENGINEERING OPERATIONS COMMITTEE  
MEETING MINUTES  
APRIL 6, 2000 - 9:00 A.M.  
EXECUTIVE CONFERENCE ROOM**

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Present:	C. T. Maki J. D. O'Doherty S. Bower	J. D. Culp J. W. Reincke	C. Roberts T. Kratofil (T. Davies)
Guests:	G. Etelamaki D. Smiley C. Bleech M. Fransted	L. Tibbits J. T. LaVoy G. Johnson	E. Savas R. Ostrowski R. Ranck

**OLD BUSINESS**

**1. Approval of the Minutes of the March 2, 2000, Meeting - C. T. Maki**

Minutes of the March 2, 2000, meeting were approved as written.

**2. Jointed Reinforced Concrete Pavement (JRCP) vs Jointed Plain Concrete Pavement (JPCP) - C. T. Maki**

A status report on the use of Jointed Plain Concrete Pavement and Jointed Reinforced Concrete Pavement was reviewed. Alternatives to the original direction set by EOC in 1997 were discussed. Steve Bower will discuss the proposed recommendation with the concrete industry.

The recommendation will be discussed further at the May meeting. The agenda item was tabled.

**3. Update on M-39 Pavement Demonstration Project - S. Bower**

The department's FY 2000 budget bill includes provisions that the department construct a project using non-standard pavement designs. The department is to investigate the possibility of constructing a non-standard pavement section that can provide an additional 40 percent life at no more than a 15 percent increase in cost. The specific language is in Section 333, Senate Bill 372.

A project on M-39 in Metro Region has been selected to incorporate these demonstration sections. Steve Bower is chairing a department team that is meeting with both paving industries to develop the demonstration sections. Two demonstration sections will be constructed, one concrete and one bituminous. Two standard sections, one concrete and one bituminous, will also be constructed.

EOC has directed that the pavement selection analysis will compare the two demonstration sections. The demonstration section with the lowest life cycle cost will be constructed on

the majority of the project. The other demonstration section and the two standard sections will each be constructed for approximately one half mile in length.

The department will monitor the performance of these four pavement designs and will also track incurred maintenance costs.

## NEW BUSINESS

### 1. **Pavement Selections - C. Bleech**

#### A. **M-10 Southbound Reconstruction, CS 63082, JN 35773**

A life cycle cost analysis was performed on the two reconstruction alternates:

Alternate 1: Flexible Bituminous Pavement

Alternate 2: Jointed Reinforced Concrete Pavement

Alternate 1, which has the lowest Equivalent Uniform Annual Cost, was approved. The pavement design and cost analysis are as follows:

38mm	Bituminous Mix 5E3, Top Course
51mm	Bituminous Mix 4E3, Leveling Course
152mm	Bituminous Mix 3E3, Base Course (2 Lifts)
100 mm	Aggregate Base
460mm	Sand Subbase
150mm	Subbase Underdrains
801mm	Total Thickness
Present Value Initial Construction Costs	\$306,772/kilometer
Present Value Initial User Costs	\$147,126/kilometer
Present Value Maintenance Costs	\$97,217/kilometer
Equivalent Uniform Annual Cost	\$30,475/kilometer

#### B. **I-75 Reconstruction, CS 09034/09035, JN 46575**

A life cycle cost analysis was performed on the two reconstruction alternates:

Alternate 1: Flexible Bituminous Pavement

Alternate 2: Jointed Reinforced Concrete Pavement

Alternate 2, which has the lowest Equivalent Uniform Annual Cost, was approved. The pavement design and cost analysis are as follows:

260mm	JRCP (8m Joint Spacing) (Mainline & Outside Shoulder)	
220mm	JRCP (8m Joint Spacing) (Inside Shoulder)	
100mm	Open Graded Drainage Course	
	Geotextile Separator	
150mm	Open Graded Underdrains	
300mm	Sand Subbase (or Existing Sand Subbase)	
660mm	Total Thickness	
Present Value Initial Construction Costs		\$676,933/kilometer
Present Value Initial User Costs		\$386,068/kilometer
Present Value Maintenance Costs		\$143,315/kilometer
Equivalent Uniform Annual Cost		\$65,043/kilometer

**C. US-12 Reconstruction, CS 82011/82061, JN 45688**

A life cycle cost analysis was performed on the two reconstruction alternates:

Alternate 1: Flexible Bituminous Pavement

Alternate 2: Jointed Reinforced Concrete Pavement

Alternate 2, which has the lowest Equivalent Uniform Annual Cost, was approved. The pavement design and cost analysis are as follows:

280mm	Jointed Reinforced Concrete Pavement (8m Joint Spacing)	
100mm	Open Graded Drainage Course	
	Geotextile Separator	
150mm	Open Graded Underdrains	
300mm	Sand Subbase	
680mm	Total Thickness	
Present Value Initial Construction Costs		\$375,374/kilometer
Present Value Initial User Costs		\$123,300/kilometer
Present Value Maintenance Costs		\$71,621/kilometer
Equivalent Uniform Annual Cost		\$30,749/kilometer

**2. Research Report, *Effect on Crashes Due to Construction to Replace Bidirectional Crossovers* - J. D. O'Doherty/L. Arens**

The objective of the study was to develop an entry in the department's crash reduction factor table for the safety countermeasure of replacing bidirectional crossovers with directional crossovers. With these data the department will be able to compare the safety benefits of this countermeasure against other possible countermeasures with known crash reduction factors. This will assist the Traffic and Safety Division in selecting the most cost effective safety treatment for situations where this treatment is an option.

The conclusion from this study is that the use of directional crossovers to replace bidirectional crossovers on multilane arterial is an effective safety countermeasure. The most

common crash type associated with the use of median crossover (rear end collision) can be expected to decrease by an average of 37 percent based on this study.

The research study cost and time data are shown below.

	<b>Proposal</b>	<b>Actual</b>
<b>Study Cost</b>	\$15,379	\$13,727*
<b>Completion</b>	January 31, 2000	February 28, 2000**

\* Final billing yet to be received.

\*\* One month time extension approved.

**ACTION:** The research report was approved for publication and distribution.

3. **Summary Reporting of Out-of-State Travel Information - C. T. Maki**

Gary Taylor's quarterly reports will complete this requirement.

(Signed Copy on File at C&T/Secondary)  
Jon W. Reincke, Secretary  
Engineering Operations Committee

JWR:kat

Attachments

cc: EOC Members  
Region Engineers

J. R. DeSana	R. J. Risser, Jr. (MCPA)	L. Stornant	T. L. Nelson
R. J. Lippert, Jr.	A. C. Milo (MRBA)	J. Ruszkowski	R. D. Till
D. L. Smiley	J. Becsey (MAPA)	C. Libiran	M. Frierson
M. Nystrom (AUC)	D. Hollingsworth (MCA)	G. J. Bukoski	C. W. Whiteside
M. Newman (MAA)	J. Steele (FHWA)	K. Rothwell	T. E. Myers
J. Murner (MRPA)			